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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,564	02/10/2004	A. Lew Wingert	BO1-0120US	1436
60483	7590	05/30/2007	EXAMINER	
LEE & HAYES, PLLC 421 W. RIVERSIDE AVE. SUITE 500 SPOKANE, WA 99201			THOMAS, ALEXANDER S	
			ART UNIT	PAPER NUMBER
			1772	
			MAIL DATE	DELIVERY MODE
			05/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,564	Applicant(s) WINGERT ET AL.	
	Examiner Alexander Thomas	Art Unit 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-70 and 72 is/are pending in the application.
- 4a) Of the above claim(s) 56-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-55, 69, 70 and 72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/11/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/15/07 has been entered.

Claim Rejections - 35 USC § 112

2. Claims 21-25, 41, 42 and 72 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no original disclosure directed to pre-treating the metal layer with a sol coating, as set forth in the independent claims, in addition to other pre-treatment techniques. The original disclosure discloses the various pre-treatment techniques as *alternative* techniques; see [0029].

Claim Objections

3. Claim 72 is objected to because of the following informalities: there is no antecedent basis for the term "pre-treating". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-26, 28-42, 45-55, 69, 70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roebroeks 6,736,919 in view of the Magellan Systems Int. publication describing M5 fibers and either applicants' acknowledged state of the art (hereafter AKA) or Blohowiak et al 5,869,140. The primary reference discloses the invention substantially as claimed, namely a fiber-metal laminate comprising at least two metal layers and at least one fiber layer disposed between the metal layers wherein the fiber layer contains a thermosetting resin matrix and has a modulus of elasticity within the instantly claimed range. The primary reference also discloses the claimed metal material and thickness of the metal layer; see the figures, column 1, lines 52-60, column 4, lines 17-57 and column 5, lines 9-22. However, the primary reference does not teach the use of PIPD fibers in the laminate as the high modulus fibers. The secondary

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reference Magellan Systems discloses that M5 fibers (disclosed by applicant on page 5 of the instant specification as being PIPD fibers) were well-known high modulus fibers for use in structural composites as of December 2002; see pages 1 and 2 of the publication. It would have been obvious to one of ordinary skill in the art to use any well-known high modulus fiber, such as PIPD fibers (M5 fibers), as the high modulus fibers in the article of the primary reference in view of the teaching in the secondary reference of the use of PIPD fibers (M5 fibers) in structural composites. Concerning the claimed sol coating on the metal layer, AKA and Blohowiak et al each disclose that inorganic sol-gel coatings on metal to improve bonding between the metal and a resin adhesive are known in the art; see the Abstract of Blohowiak et al and page 5, lines 24-35 of the instant specification. It would have been obvious to one of ordinary skill in the art to use a sol-gel coating on the metal layers in the article of the primary reference in view of the teachings in AKA and Blohowiak et al to improve interlaminar bonding in the article. Regarding claims 13-16, it would have been obvious to one of ordinary skill in the art to adjust the orientation of the fibers in the primary reference's product in any direction since it is well-known in the laminate art to orient fibers according to strength requirements for a particular end use of the product. Regarding claims 11 and 12, it would have been obvious to one of ordinary skill in the art to vary the amount of metal in the laminate of the primary reference depending on the required structural properties for a particular end use of the product. Regarding claim 21, it is a well-known scientific principle that increasing the surface area of a bond increase the bond strength, therefore, it would have been obvious to one of ordinary skill in the art to roughen the

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surface area of the product of the primary reference by any means in order to increase bond strength. The particular process used to roughen the substrate does not add any structurally distinguishing features to the final product. Regarding claims 24, 25, 31, duplication of parts is within the level of ordinary skill in the art and, therefore, it would have been obvious to one of ordinary skill in the art to provide an adhesive layer, in addition to the adhesive resin present in the fiber layer, between the metal and fiber layers.

6. Claims 27, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roebroeks 6,736,919 in view of the Magellan Systems Int. publication describing M5 fibers and either applicants' acknowledged state of the art (hereafter AKA) or Blohowiak et al 5,869,140 as applied to claims 4-26, 28-42, 45-55, 69, 70 and 72 above, and further in view of Westre et al 6,114,050. Westre et al disclose a metal-fiber laminate that comprises a honeycomb layer as a core material. It would have been obvious to one of ordinary skill in the art to laminate the product of the primary reference to a honeycomb core as taught in Westre et al in order to produce a light weight structural product.

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Thomas whose telephone number is 571-272-1502. The examiner can normally be reached on 6:30-4:00 M-THUR.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ALEXANDER S. THOMAS
PRIMARY EXAMINER